HW#81H: Quadratic Formula

Honors Geometry

Wednesday, February 17th

*Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ PD:\_\_\_\_\_\_*

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| **Quadratic Formula:** | |
| 1. What are the solutions of ? | 1. What are the solutions of ? |
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| 1. In the shot put, an athlete throws a heavy metal ball through the air. The arc of the ball can be modeled by the equation , where *x* is the horizontal distance, in meters, from the athlete and *y* is the height, in meters, of the ball. How far from the athlete will the ball land? | |
| 1. A football player punts a ball. The path of the ball can be modeled by the equation   , where *x* is the horizontal distance, in feet, the ball travels and *y* is the height, in feet, of the ball. How far from the football player will the ball land? Round to the nearest tenth of a foot. | |
| 1. Which method(s) would you choose to solve each equation? Explain your reasoning.    1. : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    2. : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    3. : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    4. : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    5. : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    6. : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| *Quadratic equations can have two, one, or no real-number solutions. Before you solve a quadratic equation, you can determine how many real-number solutions it has by using the discriminant. The* ***discriminant*** *is the expression under the radical sign in the quadratic formula ().* | |
| 1. Consider the quadratic equation   . Graph this equation on your calculator and sketch a *rough* drawing of the graph below. Then, calculate the discriminant of this equation. | 1. Consider the quadratic equation . Graph this equation on your calculator and sketch a *rough* drawing of the graph below. Then, calculate the discriminant of this equation. |
| 1. Consider the quadratic equation   . Graph this equation on your calculator and sketch a *rough* drawing of the graph below. Then, calculate the discriminant of this equation. | 1. What conclusions can you draw about the value of the discriminant and the number of solutions of the equation based on your answers to Questions 12-14? |
| ***Use your answer to Question 15 to predict the number of solutions of the two equations below without graphing the equation on your calculator.*** | |
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